Overview of coppice forests in Rhineland-Palatinate (RLP)

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The general economic conditions

In the past 60 years the economical framework conditions have been marked by strong rising costs of labour (including the non salary costs, such as health insurance holidays etc.) and, on the other hand, the slowly rising prices of timber and wood. The labour costs are now 10 times up to 20 times more than at that time and the price of wood is only double the price of 60 years ago. So the ratio labour – wood is about 1:5 or 1:10 compared to former times.

It was only just possible to break the negative cost effectiveness of wood production with implementation of mechanization and integrate more and more the natural processes in silvicultural procedures. In consequence, wood production is economically successful in cases where the owner of the forest can reduce manpower. The activities in which manpower is required soon becomes uneconomic.

Framework conditions by law

In the forest-specific law of Rhineland-Palatine it is stated that a clearcutting is not allowed. The legal definition of clearcutting is 0,5 ha (1,25 acres).

In the forest-specific law of Germany and Rhineland-Palatine it is in generally allowed to enter the forest for recreation. You are not forced to use the roads or the paths when entering the forest.

In Rhineland-Palatine, the plantations with fast-growing clones of poplar (cottonwood) are legally considered to belong in the sector of agriculture. Thus, the forest department holds no responsibility for these plantations.

Sustainability is required by law and monitored by the forest inventory, which takes place every ten years.

Political will / forestry-goals of the parliament in regard to coppice forests

The parliament of Rhineland-Palatine has a strategy for biodiversity. There are roadmaps given for many sectors, such as agriculture and forestry, to save and enrich biodiversity. Coppice forests are mentioned in the forestry sector as a result of their importance for nature protection.

State owned forests are certificated using FSC. FSC also has a law forbidding clearcuts. The definition of clearcutting in the German FSC regulations is 0,3 ha (0,75 acres), as well as a minimum number of trees left on this area. This is currently a cause for uncertainness for many forest officers when they want to regenerate light-demanding trees.

Silvicultural targets of the forestry in Rhineland-Palatine

The main aims of forestry are economic success, to support different types of protecting functions and to offer a wide range of opportunities for the people for close to nature recreation.

In most forest areas the approach is that the protective functions and the close to nature recreation can be fulfilled if the economic orientated forestry is done following the rules of the accepted practice. This means that in Rhineland-Palatine a forest management close to nature (which is required by law for the state owned forests) is achieved by working with natural trends as far as possible.

In most forest areas the aim of forest management is to produce (high) earnings by observing the sustainability of the ecological and protective functions of the forest.

The earnings go down when more manpower is given into the management of the forests.

Wood is growing in the forest with manpower, but also without manpower. For the mass production of wood, you do not need a forest ranger. Thus, the manpower invested in the forest should create additional benefit. The economical benefit is given when a better price for logs can be reached later on, when it is sold in the future. Therefore, the silvicultural goals are high-grade wood und timber for veneer production. With this vision, the silvicultural guidelines require an opening be provided for the crop-tree-crown at the most early moment so that the quality of the log is given. In some cases there is a need of pruning and reducing the branches - in case we want to produce logs in the future, with a wide layer of branchless high grade wood.

If you bring all these facts to your mind, the conclusion is, that coppice forests are not in the focus of the ordinary forestry.

Coppice forests in Rhineland-Palatine

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Coppice forestry is a kind of forest management that is characterized by the ability of specific species of trees to regenerate the stool roots with shoots. Coppice forests are managed in short cutting cycles, mostly about two decades. The trees are cut within the short term cycle and the stool root regenerates new shoots.

In Rhineland-Palatine the most important tree species for coppice forestry are oak, hornbeam, beech, birch and chestnut. However, there is also a variety of rare tree species combined with the coppice forest, such as different sorbus species.

The coppice forest is a type of historical forest management. Around 100 years ago the main objective of this type of management was the production of firewood (charcoal) and tanbark. In the 20s of the last century chemical products substituted oak tanbark. In the 50s and 60s of the last century the need of firewood was also reduced. This was caused by the change in the materials to heat houses – there was no need for firewood anymore, it was substituted by oil and gas.

Thus, in the 60s the demand for the products of the coppice forests collapsed. There was no need to cut these forests in a short term cycle anymore.

The question that faced forestry at this time was: what should be done with these forests that are becoming older than planned?

The future of the coppice forests was dependent on their preconditions – either the quality of the timber or of the fertility of the area (nutrient and moisture of the soil, steepness of the terrain, the opening by roads).

If the fertility of the soil was not too bad and the quality of the coppice shoots was poor, a change of tree species was induced. The forestry wanted to exploit the ground. The general proceeding was a clearcut and the plantation of fir and douglas fir. The owner could expect more profits with these conifers. Large areas of forest with a variety of species were converted to conifer plantations at that time. Nowadays the forests of Rhineland-Palatine are about 7 % douglas fir, the most of all German states.

If the quality of the stool roots had been not too bad, then the coppice forest was converted to a high forest system. The shoots were separated and a thinning lead to forests we have here today. The coppice origin of these forests is apparent \rightarrow Presentation Slide 3. You can see a swelling at the base of the stem that indicates the coppice-origin. There can also be groups of stems resulting from one stool root. \rightarrow Presentation Slide 4

Currently about 2 to 3 percent of the forest area in Rhineland-Palatine forests can be called coppice forests (in Germany it is less than one percent). Most of these forests are up to 80 years old, situated on steep ground and on poor, stony and dry soil. In regard to their socio-economic relevance, the management / work is very difficult and gets more expensive since roads are quite rare.

A consequence of the lack of roads is that these coppice forests are very quiet. There is nearly no work going on and so there are also very few people involved in recreation there – thus, it is a paradise for game animals. The game animal density in coppice forests is usually very high.

The distribution of coppice forests ownership is equivalent to the other forest sites, which means it is predominantly in communes. There are also privately owned coppice forests and private cooperatives. State owned coppice forests are comparatively rare.

There is a regional difference in different types of coppice forests, according to the main tree species. In the north of RLP, at the valleys of the rivers Rhine, Mosel, Saar, Lahn and in the Westerwald you can find oak-dominated coppice forests and in the south, coming up from the Alsace in France, you will find chestnut coppice forests at the eastside of the palatine mountains.

Oak-coppice forests

Nowadays, the oak-coppice forests are mainly situated on steep sites. The economic value of these forests is low, mostly close to zero. Management is usually uneconomic.

On the other hand, these forests are valuable in terms of the protection of biotopes, species, soil, water quality and the prevention of erosion. If they are located close to towns and cities, then there is also a function for recreation of the people. Furthermore coppice forests form the natural and cultural landscape. \rightarrow Presentation Slide 2

So the main intention in the management of these coppice forests is to support these functions, even if that sometimes leads to economic deficits. For the people living in these areas the success is to have sustainable protective and ecological functions!

The management of these oak-coppice forests takes place according to their objectives.

If the main objective is the protection of species and biotopes, then the main elements of this special interest must be in a good condition. If the conditions are good and it is not expected that they will deteriorate, then manpower should not be invested in this coppice forest. If the conditions are poor, or they risk becoming worse, manpower must be invested into this system, for example to support single trees or seldom species, or rare biotopes.

If the main objective is the prevention of erosion, one should also support single trees with a high vitality, especially in the roots.

The stool roots in the coppice forests are usually quite old. The stool roots result at least in part from the first tree at the beginning of the coppice cycle. Following a cut the stool root can start to rot. Rotten roots worsen the stability. This is no risk for a little shoot – but the higher the tree gets, the higher is the leverage and the trees break. \rightarrow Presentation Slide 5

Thus, if the support of single trees is desired, one should look for trees of seed origin. These trees can mainly be recognized at the stem base.

In some cases there is no other chance to save the ability of the forest to prevent erosion than to regenerate the forest with natural regeneration or planting.

If the main objective is to support the natural scenery and the quality for recreation, one can, for example, enrich the diversity of trees, especially with flowering trees or trees with fruits.

In the most cases a combination of several functions will be present, such as the protection of species and prevention of erosion.

The situation would be easy and laid-back if the natural regeneration of the forests were to work without difficulty. However, the main problem in nearly all our forests, but especially coppice forests due to their quiet atmosphere, is game animal damage. The game animal density is usually high and the damage of the natural regeneration is mostly lethal. In the coppice forest the future is also, like everywhere, the young generation. So the first duty is to reduce the game animal density by hunting, the second duty is, hunting, and the third duty is hunting as well. But hunting in coppice forests is difficult – there are no roads and the few roads are usually in bad condition.

Building a fence is difficult as well. The material must be carried a long way and the ground is usually not of the quality needed for easy work.

Thus, every work / management option for coppice forests in RLP is difficult and expensive.

Chestnut-coppice forests

In the east of the palatine mountains there is a viticultural climate. It was because of this that the Romans imported the sweet chestnut. 100 years ago the dominant tree species in this area had been the pine. However, nowadays there is a line with a length of about 40 km and a width of about 1 kilometre, coming up from the north of Alsace, where one can currently find chestnut coppice forests.

I want to note from the beginning that the nuts of the chestnut trees are liked very much. The domestic people and also tourists come at autumn to the chestnut forests to collect the chestnuts. The combination of eating chestnuts and drinking wine is very popular.

The wood of the chestnut is very durable. So it needs no impregnation and can be used as an ecological material.

A few decades ago the chestnut stems had just the right dimension to be used as poles in the vineyards. So the Coppice forests with Chestnut were popular for this use. But not long ago, the material for poles was substituted by metal, cement or plastic. So the demand of chestnut poles went down. The cutting in the coppice system was stopped not long ago, similar to the oak coppice forests where coppice stopped 50 years ago.

Conversion by separating the stems, with the main objective to produce logs with a big dimension, is not feasible. Why so? Chestnut logs with a diameter over 25 cm very often have a defect called ring shake. Usually logs with a diameter less than 25 cm are o.k., those with a diameter more than 25 cm very often break along the line of annual rings - such logs are downgraded to firewood. → Presentation Slide 6

If the log of chestnut is large in diameter, of good quality and without ring shake – the price one can get for the timber is comparatively high. (oak)

There is no scientific knowledge on the cause(s) of ring shake. The forest rangers that work with chestnut think they've observed: the rate without annual ring crack is small, if the origin of the tree is a seed. The ring shake occurs cumulatively in logs from coppice forests.

So what to do with the chestnut coppice forests?

A major opportunity for merchandising chestnut logs with an origin of coppice forests are the requirements for the technical protection against avalanche. The logs, which are used to build barriers against avalanches, should have a diameter of about 20 cm, a straight stem and be very durable without impregnation. These are the characterizing qualities of the wood harvested in the chestnut coppice forests. The revenue for these logs is about 80 Euro per cubik meter. This is a comparatively good price and is above the average price of all offered logs.

So nowadays the silvicultural strategy to manage coppice forests with chestnut are middle forests. It is cut in a circle of about 20 to 30 years, when the trees reach the needed dimension for the avalanche barriers – but no clearcut. There are a few trees left, for getting older and produce big dimension high quality logs. The decision, which tree is left, depends on the quality of the stem and the origin of the tree. The origin of the tree is seen in a very young stage and so these trees are marked and favored by management as crop trees from the beginning. \rightarrow Presentation Slide 7 So the silviculural goal is, to produce worthy logs with a big dimension and also the logs with a small dimension in a coppice forestsystem at the same time and the same area.

Conclusion

Coppice forests are important elements of the landscape / natural scenery.

The coppice forests are a refugium for specific biotopes and certain species.

Coppice forests prevent erosion and protect soil and water.

The economical value of oak coppice forests is in most cases little – the costs of management high.

The economical value of chestnut forests is given. The earnings from chestnut timber is comparatively high.

Future management of coppice-forests

We want to save a special quota of coppice-forests, according to the initial conditions. "Save" means to manage these areas in a coppice forest – system und to cut them in a short term period.

We want to support the species biodiversity - of tree species, but also the species of other plants and animals.

We want to improve the protective functions of the coppice forests.

We want to support trees that have a high vitality, especially single trees resulting from seed or a tree with a young and healthy stool root.

We have to protect the forests against game animal damage. Hunting is the most effective procedure for this very important aspect.